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Northern
Region

PRESCRIBED FIRES in the Northern Region

FACT SHEET... 1981

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FACT SHEET ON

PRESCRIBED FIRES

NORTHERN REGION, FOREST SERVICE

BACKGROUND

Since 1972 the Northern Region of the Forest Service has actively pursued a program of allowing some lightning fires to burn within prescription within certain wildernesses. Before allowing fires to burn, an area must have a detailed fire management area plan approved by the Regional Forester. The guiding framework for this program direction is the 1964 Wilderness Act, which states in part, that wilderness should appear to have been "...affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable..."

There also are approved fire management areas outside of wilderness where lightning fires are allowed to burn within prescription. Examples are the Troy Ranger District on the Kootenai National Forest and portions of the Lolo and Bitterroot National Forests. The policy justification for these fire management areas (FMA's) is summarized in the Revised Fire Management Policy of 1978: "The basic fire management policy on National Forest System lands is to provide well planned and executed fire protection and fire use programs that are cost effective and responsive to land and resource management goals and objectives..."

Policy is only half of the prescribed fire program; the other half consists of sound ecological principles. Fire is a primary force of nature, as significant to plant communities as wind, precipitation, gravity or the fluctuations of temperature. Fire ecologists have shown that many forests within the Northern Region were literally "born of fire", and that some ecosystems depend upon fire for their continued existence.

Fire managers began to see the effects 60 years of fire suppression had on forested ecosystems. Parks and other natural openings gave way to tree growth. Some managers estimated that forest fuels accumulated faster than they decomposed. Fire suppression efforts also impede the natural cycle of wilderness ecosystems, and sometimes leave the heavy footprint of humanity upon the landscape with fireline scars and temporary stains from fire retardant chemicals.

Fires, whether inside or outside of wilderness, are not just simply allowed to burn! Fire plans tell how fire previously affected the land and how fire can be safely restored to the area's ecosystems. Each fire management plan specifies when, where, and under what conditions a new ignition is allowed to burn. Fires that have the potential to affect public safety or burn private property have an immediate suppression response. Portions of

fires allowed to burn are sometimes contained to keep the fire within administrative boundaries. Whatever the case, though, fires are not randomly allowed to burn; each fire is continuously judged upon its individual merits. In all cases, fire is viewed as a dangerous tool to be used only by the skilled hand of the professional land manager.

KEY FACTS

Allowing lightning fires to burn within approved fire management areas does not imply a weakened fire suppression posture. FACT: Over 70 percent of potential prescribed fires are immediately suppressed. Since 1979, 221 ignitions occurred within FMA's with only 64 fires finally allowed to burn.

Smoke has the potential to limit severely the number and size of prescribed fires permitted to burn within an FMA during a given year. One assumption basic to most fire management plans must be remembered, though, and that is that managers merely postpone the inevitable release of energy (and smoke) when a forest fire is suppressed. FACT: Prescribed fires probably produced over 7,500 tons of airborne particulate matter (smoke) in 1981, but from July through October, visibility was restricted in the Bitterroot Valley less than 5 days. FACT: Air quality experts in Missoula, Montana, a city downwind of fires burning in the Selway-Bitterroot Wilderness, said that there were no unusual rises in the measured particulate count from July through October 1981.

There were no known one-on-one people encounters with prescribed fires during 1981. The residents of Wise River, Montana, could watch the daily progress of the East Fork Fishtrap Fire in the Anaconda Pintler Wilderness from their front lawns. Smoke plumes from fires burning within the Selway-Bitterroot Wilderness were visible from Missoula, Lolo, and Hamilton, Montana. FACT: People have not been barred from entering FMA's when fires are burning. Warning signs have been posted at trail heads explaining that a forest fire may be encountered and outlines precautionary steps for safety.

Imagine a forest fire. Probably the traditional image of a running crown fire destroying valuable timber stands will come to mind. FACT: Observations of free burning prescribed fires have shown that a variety of fire behavior/fire intensity patterns occur. FACT: Major area growth of measured prescribed fires has occurred from slow spreading backing fires with flame lengths within the 1-foot range. Crown fires do occur, but they are generally short lived, making 10- to 50-acre runs.

Many people believe that forest fires destroy everything in their path; the "I thought forest fires were black" syndrome. FACT: Of 64 fires that have been allowed to burn since 1979, 40 of them have burned less than 1/4 acre each. Of the 38,499 acres that have burned since 1979, ocular estimates indicate that less than 25 percent of that burned area has been affected by stand replacement fires.

Prescribed fires are a matter of scale and perspective. Some people believe that, with time, our wilderness areas will be nothing but a black patch of burned timber. FACT: Of the 2,800,000 acres under fire management prescription in 1981, less than 1.5 percent of the total acres have burned, and of that total less than 1/10 of 1 percent have been affected by the blackening, stand replacement type fire. FACT: Even stand replacement fires are temporary, for understory plants and trees survive to provide a seed source for the generation of a new forest.

In cooperation with NASA in Houston, Texas, arrangements were made, after the 1979 fire season, to photograph the burned areas from high altitude (U-2). Again this year arrangements were made to fly the 1981 burned areas in addition to some of the area burned in 1979. We hope to develop techniques of burn evaluation along with inventory methods and other procedures using this photography. We feel confident that there is other information to be gleaned from these photos that will be of value in managing the prescribed fire program in the future.

Table 1.--Approved Northern Region fire management areas.

National Forest	Name of Area	Acres		
		Wilderness	Nonwilderness	Total
Bitterroot	Selway-Bitterroot Wilderness	203,590		203,590
Bitterroot	High elevation, light fuels	68,960	8,840	77,800
Bitterroot	Intermingled ownership - high resource value zone		433,080	433,080
Bitterroot	Camp-Tolan		39,848	39,848
Clearwater	Selway-Bitterroot Wilderness	265,779		265,779
Deerlodge	Anaconda-Pintler	44,175		
Beaverhead	Wilderness	72,537		
Bitterroot		41,162		157,874
Flathead	Scapegoat Wilderness	166,200		432,900
Helena	and Danaher Portion of	87,000		
Lewis & Clark	the Bob Marshall	98,800		
Lolo	Wilderness	80,900		
Kootenai	Cabinet Mountains Wilderness	94,272		94,272
Kootenai	Troy Ranger District		309,272	309,272
Lolo			264,636	264,636
Nezperce	Selway-Bitterroot Wilderness	559,512		559,512
Total acres		1,782,887	1,055,676	2,838,563

Table 2.--Prescribed fire summary, 1981 fire season.

National Forest	Fire Starts	Fires Suppressed	Fires Allowed To Burn	Prescribed Acres Burned
Beaverhead	1	0	1	125
Bitterroot	9	1	8	1
Clearwater	15	8	7	3,835
Deerlodge	0	0	0	0
Flathead	1	1	0	0
Helena	2	2	0	0
Kootenai	0	0	0	0
Lewis & Clark	2	0	2	230
Lolo	1	0	1	2
Nezperce	64	53	11	2,369
Total	95	65	30	6,562

Table 3.--Potential prescribed fires suppressed in Northern Region and primary reason for suppression.

National Forest	Fires Suppressed	ERC Outside Prescription	Person caused-	RF Ban Based On Smoke	Near Management Boundary	Forest or District Fire Load
Beaverhead	0					
Bitterroot	1			1		
Clearwater	8	1	2	5		
Deerlodge	0					
Flathead	1				1	
Helena	2		2			
Kootenai	0					
Lewis & Clark	0					
Lolo	0					
Nezperce	53	20		14	2	17
Totals	65	21	4	20	3	17

Table 4.--Prescribed fire summary, 1979-1981.

Year	Number Fires Allowed to Burn	Acres Burned	(Fires over 20 acres) Fire Management Area	Fire Name	Acres Burned
1979	29	31,937	Selway Bitterroot Wilderness	Barefoot	4,600
			"	Peach Creek	10,400
			"	Upper Dead Elk	75
			"	Independence	16,300
			Troy Fire Mgmt. Plan (Kootenai National Forest)	Smith Mtn.	542
1980	5				
1981	30	6,562	Selway-Bitterroot Wilderness	Cedar Creek	255
Total:	64	38,499	"	Blodgett	1,946
			"	Hidden L.O.	125
			"	Tadpole Lake	1,368
			"	Frog Peak	137
			"	Maple	95
			"	Squaw	645
			"	Meeker Ridge	1,590
			"	Cox Creek #4	20
			Anaconda Pintler Wilderness	E. Fork Fish-trap	125
			Scapegoat Wilderness	Cigarette	230

Table 5.--Prescribed fires allowed to burn in 1981

Fire Management Area, Forest and Fire Name	Date Reported 1981	Duration of Burn Active Smoke/Flame (days)	General Fuel Condition	Fire Size Acres
SELWAY-BITTERROOT WILDERNESS				
Bitterroot NF				
North Star	6/30	13	ponderosa pine	spot
Jack Creek	7/17	7	ponderosa pine	spot
Boulder Cr. Falls	8/14	6	alpine fir	spot
Beaver Creek	8/15	10	alpine fir & rock	spot
Mill Lake	8/16	8	alpine fir	< 1/4
Sweeney Lake	8/18	7	alpine fir & rock	< 1/4
Sawtooth	8/25	5	alpine fir & rock	spot
Ingomar	8/25	5	alpine fir & rock	spot
Clearwater NF				
Cedar Creek	7/27	55	Douglas-fir/ponderosa pine	255
Blodgett Pass	8/16	35	scattered subalpine fir	1,946
Lake Ridge	8/16	35	subalpine fir near old burn mosaic	2
Ranger Lake	8/16	3	subalpine fir	2
Hidden Peak L.O.	8/17	20	subalpine fir	125
Tadpole Lake	8/25	26	spruce/fir	1,368
Frog Peak	8/25	26	lodgepole pine/whitebark pine	137
Nezperce NF				
Power Cr. #2	7/6	1	brush field	spot
Goat	7/17	< 2 hours	grass/ponderosa pine	spot
Elk	7/17	< 1 hour	grass/ponderosa pine	spot
Wylies Ridge	7/17	< 1 hour	grass/ponderosa pine	spot
Maple	7/18	74	Douglas-fir/grand fir	95
Ten Foot	7/18	< 1 hour	subalpine fir/brush	spot
Butte	7/18	5	subalpine fir	spot
Mink	7/18	< 5 hours	brush field	spot
Squaw	7/25	87	subalpine fir/lodgepole pine meadow/ridge top	645
Meeker Ridge	7/26	87	south slope brush field/ scattered ponderosa pine/ Douglas-fir	1,590
Cox Creek #4	9/3	17	subalpine fir/lodgepole pine	20
ANACONDA PINTLER WILDERNESS				
Beaverhead NF				
E. Fork Fishtrap	7/16	72	old growth lodgepole/ alpine fir	125
SCAPEGOAT WILDERNESS				
Lolo NF				
Canyon Point	8/15	46	alpine fir & snowbrush	2
Lewis & Clark NF				
Cigarette	8/6	55	alpine fir	230
Crown Point	8/16	8	alpine fir	spot

Table 6.--Vegetation affects on 1981 prescribed fires.

Fire Management Area and Fire Name	Acres Burned	Elevation	General Exposure	Fire Habitat Group[1/]	Major Vegetation Affected	Acres Stand Replacement
ANACONDA PINTLER						
E. Fork Fishtrap	125	7,200-8,200	south	7	lodgepole pine, subalpine fir, dwarf huckleberry, pine grass	20
SCAPEGOAT WILDERNESS						
Canyon Point	2	6,500	north	9	alpine fir	-
Cigarette	230	7,200	southeast	7	alpine fir	-
SELWAY BITTERROOT WILDERNESS						
Cedar Creek	255	3,400-4,300	south	11	ponderosa pine	10
Blodgett Pass	1,946	5,300-7,300	southerly	9	subalpine fir	1,500
Hidden Lookout	125	5,900-7,300	east	0 (forested rock)	subalpine fir	100
Tadpole Lake	1,368	6,000-7,800	southwest	7,8,9	lodgepole pine, subalpine fir, Douglas-fir, beargrass, menziesia	1,400
Frog Peak	137	6,800-7,700	west	10	lodgepole pine, alpine larch	80
Maple	95	2,700	south	11	cedar, grand fir, Douglas-fir	5
Cox Creek #4	20	6,000	south	7	alpine fir, lodgepole pine	20
Meeker Ridge	1,590	2,000-4,500	southerly	4	seral brushfields	-
Squaw	645	6,800	southerly	8,9	beargrass, huckleberry	450

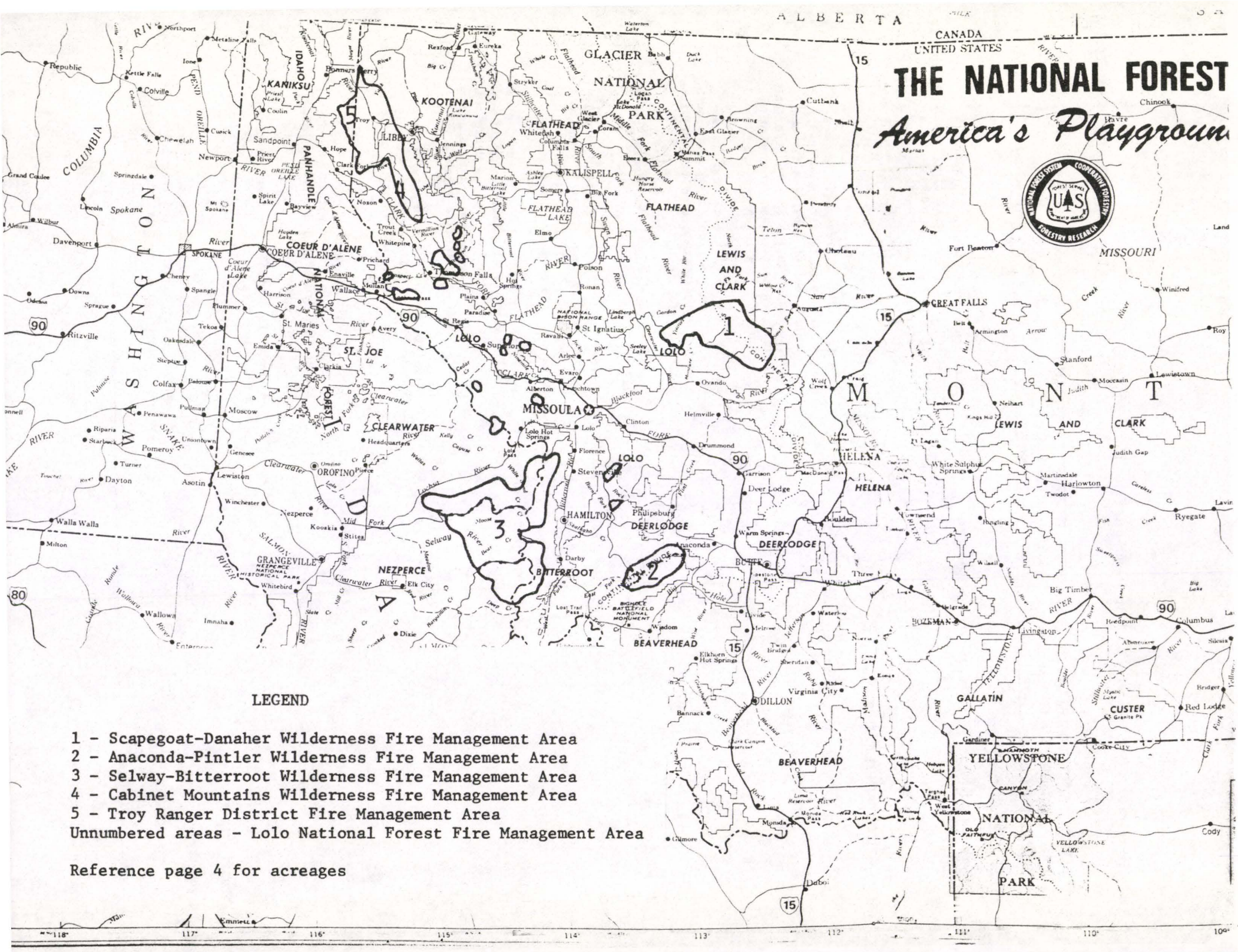
1/ See Appendix A for Fire Habitat Group Discussion

Table 7.--Person days on larger fires for monitoring, limited suppression and approximate total cost to manage fire.

Fire Management Area, Forest and Fire Name	Person Days Monitoring Fire	Person Days Limited Suppression	Type of Limited Suppression	Total Fire Management Cost
SELWAY-BITTERROOT WILDERNESS				
Bitterroot NF	Eight spot fires monitored periodically by fixed wing.			
Clearwater NF				
Cedar Creek Blodgett Tadpole Lake Frog Peak Hidden Peak LO	All fires routinely monitored by air patrol; helicopter used to recon fires for contingency plans.			$1,600
Nezperce NF				
Squaw	Air patrol.			
Cox Creek #4	Air patrol.			
Meeker	Monitors used to photograph, map and collect fuel information.	12	Burnout to protect Meeker Cr. trail bridge.	500
Maple	Air patrol; monitors used to photograph, map fire and collect fuel information.			
ANACONDA PINTLER WILDERNESS				
Beaverhead NF				
E. Fork Fishtrap	Air patrol with 10 days on the ground monitoring.	22	Three-quarter mile handline dug to keep fire within wilderness boundary; portable pumps used to construct "wet-line".	4,700
SCAPEGOAT WILDERNESS				
Lolo NF				
Canyon Point	Air patrol hot days; FMO on the ground			
Lewis & Clark NF				
Cigarette	Routine air patrol. Ground monitors for about 2 weeks in late August.			2,226

Table 8.--Fire behavior occurring on 1981 prescribed fires (50 acres or larger).

Fire Management Area, and Fire Name	Duration Active Burning Days	Elevation feet	General Exposure	Fire Behavior
ANACONDA PINTLER WILDERNESS				
E. Fork Fishtrap	72	7,200-8,200	south	Fire ignited in lodgepole pine fuels, a creeping ground fire extending itself by burning the lengths of punky logs; grew 10-12 acres in 1 day when ERC (NFDRS fuel model G) was in 40's.
SELWAY-BITTERROOT WILDERNESS				
Blodgett Canyon	35	5,300-7,300	south	Fire ignited in sparse fuels at base of glacial trough wall; fire grew in size by the torching out of subalpine fir and associated spotting; a backing fire that moved 4 miles down canyon from point of ignition and 3/4 mile up canyon.
Frog Peak	26	6,800-7,700	west	Backing fire in high elevation fuels--whitebark pine, alpine larch, old growth lodgepole pine; fire burned into old fire mosaic at ridgetop.
Hidden Lookout	20	5,900-7,300	east	Burned in subalpine fir on glacial trough wall.
Cedar Creek	55	3,400-4,300	south	Ignited in ponderosa pine; fire spread limited by shading of fuels in dense cedar stand and high humidities associated with creek-canyon bottoms.
Tadpole Lake	26	6,000-7,800	southwest	A severe fire that totally consumed most small diameter fuels; fire moved sideways on a southwest facing slope; a dense stand of fir along bottom edge of fire and near Hidden Creek stopped fire spread.
Maple	74	2,700	south	Creeping ground fire with largest daily area growth of 10 acres; fire probably didn't get bigger due to cool conditions in canyon bottom.
Meeker Ridge	87	2,000-4,500	south	A backing fire with area growth due to rolling material; fire burned in leaf litter in a brushfield created by 1934 Pete King Fire.
Squaw	87	6,800	south	A severe fire with major area growth due to backing fire.
SCAPEGOAT WILDERNESS				
Cigarette	72	7,200	southeast	Fire started in alpine fuels. Spread very slowly until August 26 and then burned hot for 2 days making most of final acres.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ST. JOE
CLEARWATER
NEZPERCE
LOLO
FLATHEAD
LEWIS AND CLARK
MISSOULA
DEERLODGE
BEAVERHEAD
HELENA
GALLATIN
CUSTER
YELLOWSTONE NATIONAL PARK
BITTERROOT
SELWAY
SALMON
SPOKANE
GREAT FALLS
BOZEMAN
BUTTE
DILLON
KALISPELL
MISSOURI
COLUMBIA
SNAKE
CLEARWATER
IDAHO
MONTANA
LEGEND
1 - Scapegoat-Danaher Wilderness Fire Management Area
2 - Anaconda-Pintler Wilderness Fire Management Area
3 - Selway-Bitterroot Wilderness Fire Management Area
4 - Cabinet Mountains Wilderness Fire Management Area
5 - Troy Ranger District Fire Management Area
Unnumbered areas - Lolo National Forest Fire Management Area
Reference page 4 for acreages

APPENDIX 1

THE FIRE GROUPS

The forest habitat types of Montana have been assembled into 12 Fire Groups (table 1) which are defined as follows:

Fire Group Zero: a heterogeneous collection of special habitats. These sites exist as scree, forested rock, meadow, grassy bald, aspen grove, and alder glade.

Fire Group One: dry limber pine habitat types. These occur almost exclusively east of the Continental Divide in Montana.

Fire Group Two: warm, dry ponderosa pine habitat types. This group consists of open ponderosa pine stands with a predominantly grass undergrowth and dense mixed-aged stands of ponderosa pine. These sites may exist as fire - maintained grasslands, and do not support Douglas-fir, except as "accidental" individuals.

Fire Group Three: warm, moist ponderosa pine habitat types. These sites occur exclusively east of the Continental Divide in Montana. These sites often exist as stagnant, overgrown thickets of ponderosa pine saplings.

Fire Group Four: warm, dry Douglas-fir habitat types. These are areas that exist in nature as fire-maintained ponderosa pine stands that develop Douglas-fir regeneration beneath the pine in the absence of fire.

Fire Group Five: cool, dry Douglas-fir habitat types. Douglas-fir is often the only conifer that occurs on these sites. In the absence of fire, dense Douglas-fir sapling understories may develop.

Fire Group Six: moist Douglas-fir habitat types. Group Six habitat types will support substantial amounts of Douglas-fir even when subjected to periodic fire.

Fire Group Seven: cool habitat types usually dominated by lodgepole pine. This group includes stands in which fire maintains lodgepole pine as a dominant seral as well as those in which it is a persistent dominant species.

Fire Group Eight: dry, lower subalpine habitat types. This is a collection of habitat types in the spruce and subalpine fir series that usually occur as mixed Douglas-fir/lodgepole pine stands.

Fire Group Nine: moist, lower subalpine habitat types. Group Nine is a collection of moist lower subalpine habitats in which fires are infrequent, but severe, with long-lasting effects. Spruce is usually a major component of seral stands.

Fire Group Ten: cold, moist upper subalpine and timberline habitat types. Group Ten is a collection of high-elevation habitats in which fires are infrequent. Fires that occur are small in areal extent because of the fuel situation. Severe fires have long-term effects. Spruce, subalpine fir, whitebark pine and alpine larch are the predominant conifers in this group.

Fire Group Eleven: moist grand fir, western redcedar, and western hemlock habitat types. These are moist habitats in which fires are infrequent and often severe. In Montana they occur exclusively west of the Continental Divide. Fire Group Eleven forests are very common in northern Idaho.

Table 1.--Summary of Montana forest habitat type fire groups (See Appendix C for formal listing of habitat types).

Habitat type[1]	Forest Region[2]
FIRE GROUP ONE	
PIFL/AGSP	NC, C, SW, SC
PIFL/FEID-FEID	NC, C, SW, SC
PIFL/FEID-FESC	NC, C
PIFL/JUCO	NC, C, SW, SC
FIRE GROUP TWO	
PIPO/AND	SE
PIPO/AGSP†	NW, WC, C, SE
PIPO/FEID-FEID	WC, C, SE
PIPO/FEID-FESC†	NE, WC, C
PIPO/PUTR-AGSP	WC, C
PIPO/PUTR-FEID	NW, WC, C
PIPO/SYAL-SYAL	NW, WC, C, SE
PIPO/SYOC*	C
PIPO/ARUV*	C
PIPO/JUHO*	C
PIPO/JUSC**	C
FIRE GROUP THREE	
PIPO/SYAL-BERE	C, SE
PIPO/BERE*	C
PIPO/AMAL*	C
PIPO/PRVI-PRVI	SE
PIPO/PRVI-SHCA	SE
FIRE GROUP FOUR	
PSME/AGSP	NW, WC, C, SW, SC
PSME/FESC	NW, WC, C
PSME/PHMA-CARU	NW, WC
PSME/SYAL-AGSP	NW, WC, C
PSME/SYOC-CHVI*	C
PSME/SYOC-SHCA*	C
PSME/CARU-AGSP	NW, WC
PSME/CARU-PIPO	NW, WC, C
PSME/SPBE	NW, WC, C, NC
PSME/ARUV†	C, SC
PSME/BERE-ARUV*	C
PSME/BERE-BERE*	C
PSME/JUSC**	C
PSME/MUCU**	C
FIRE GROUP FIVE	
PSME/FEID	NW, WC, SW, SC
PSME/CARU-AGSP	C
PSME/CAGE	WC, C, SC, SW
PSME/ARCO	C, SW
PSME/SYOR	SW
PICEA/SEST-PSME	NC, C, SW

Habitat type[1]	Forest Region[2]
FIRE GROUP SIX	
PSME/PHMA-PHMA	NW, WC, C, SW, SC
PSME/VICA*	C
PSME/VAGL-VAGL	NW, WC, C, SW, SC
PSME/VAGL-ARUV	NW, WC, C
PSME/VAGL-XETE	NW, WC, C
PSME/LIBO-SYAL	NW, WC, C
PSME/LIBO-ARUV*	C
PSME/LIBO-CARU†	NW, WC, C, SW
PSME/LIBO-VAGL	WC, C
PSME/SYAL-CARU	NW, WC, C, SW, SC
PSME/SYAL-SYAL	NW, WC, NC, C, SW, SC
PSME/AMAL*	C
PSME/CARU-AEUV	NW, WC, C
PSME/CARU-CARU	NW, WC, NC, C, SW, SC
PSME/VACA	NW, WC
PSME/JUCO	NC, C, SW
FIRE GROUP SEVEN	
PSME/JUCO	NC, C, SW
PSME/VACA	NW, WC, NC, C
PSME/COCA-LIBO*	C
PSME/COCA-VAMY*	C
PICEA/BACA	NW, NC
PICEA/LIBO	WC, C, SC, SW
ABLA/VACA	WC, C, SW
ABLA/CACA-VACA	NW, WC, C, SW
ABLA/LIBO-VASC	NW, WC, NC, C, SC, SW
ABLA/XETE-VASC	NW, WC, NC, SW
ABLA/VAGL	WC, C, SC, SW
ABLA/VASC-CARU	C, SC, SW
ABLA/VASC-VASC	NW, WC, C, SC, SW
ABLA/CAGE-CAGE	NC, SW
PICO/PUTR	SC
PICO/VACA†	WC, NC, C, SW
PICO/LIBO†	NW, WC, C, SC, SW
PICO/VASC	NW, WC, C, SC, SW
PICO/CARU*	C, SC, SW
PICO/JUCO*	C
FIRE GROUP EIGHT	
PICEA/LIBO*	C
PICEA/PHMA	SC
PICEA/SMST	WC, C, SW, SC
ABLA/XETE-VAGL	NW, WC, NC, SW
TSME/XETE	NW
ABLA/VASC-THOC	C, SW
ABLA/CARU	NC, C, SW, SC
ABLA/CLPS	NC, C, SW, SC
ABLA/ARCO	NC, C, SW
ABLA/CAGE-PSME	C, SW, SC

Habitat type[1]	Forest Region[2]
FIRE GROUP NINE	
PICEA/EQAR	NW, NC, C, SW, SC
PICEA/CLUN-VACA	NW
PICEA/CLUN-CLUN	NW
PICEA/GATR	WC, C, SW, SC
ABLA/OPHO	NW
ABLA/CLUN-CLUN	NW, WC, NC
ABLA/CLUN-ARNU	NW, WC, NC
ABLA/CLUN-VACA	NW, WC
ABLA/CLUN-XETE	NW, WC, NC
ABLA/CLUN-MEFE	NW, WC, NC
ABLA/GATR	WC, NC, C, SC
ABLA/CACA-CACA	WC, C, SW, SC
ABLA/CACA-GATR	WC, C, SW
AGLA/LIBO*	C
ABLA/LIBO-LIBO	NW,WC,NC,C,SW,SC
ABLA/LIBO-XETE	NW,WC
ABLA/MEFE	NW,WC,NC,SW,SC
TSME/MEFE	NW, WC
ABLA/ALSI	WC,NC,SW,SC
FIRE GROUP TEN	
PICEA/SECT-PICEA	C
PICEA/JUCO s.t.*	C
ABLA/KIMO	SW, SC
ABLA-PIAL/VASC	WC,NC,C,SW,SC
ABLA/LUHI-VASC	NW, WC, NC, SW
ABLA/LUHI-MEFE	NW, WC, NC
ABLA/JUCO s.t.*	C
TSME/LUHI-VASC	NW
TSME/LUHI-MEFE	NW
PIAL-ABLA h.t.s.	NW,WC,NC,C,SW,SC
LALY-PIAL h.t.s.	NW, WC, SW
PIAL h.t.s.	WC, C, SW, SC
FIRE GROUP ELEVEN	
ABGR/XETE	NW, WC
ABGR/CLUN-CLUN	NW, WC
ABGR/CLUN-ARNU	NW, WC
ABGR/CLUN-XETE	NW
ABGR/LIBO-LIBO	NW, WC
ABGR/LIBO-XETE	NW
THPL/CLUN-CLUN	NW, WC
THPL/CLUN-ARNU	NW, WC
THPL/CLUN-MEFE	NW, WC
THPL/OPHO	NW
TSHE/CLUN-CLUN	NW
TSHE/CLUN-ARNU	NW

[1] Habitat types are as described by Pfister and others (1977) except those designated as follows:
* habitat types of Bearpaw and Little Rocky Mountains (Roberts 1980)
** habitat types of Missouri River Breaks (Roberts and Sibbernsen 1979)
† common to both Pfister and others (1977) and Roberts (1980)

[2] Forest regions are as described by Arno (1979).